CLAIMS:

1. A method of processing an input image (I) comprising N rows of image points, wherein

a) an image strip comprising $n < N$ adjacent rows of the input image is resolved into a sequence of K detail images ($\Lambda_0, \ldots \Lambda_3; \Gamma_0, \ldots \Gamma_3$), which in each case contain just some of the spatial frequencies of the input image;

b) at least one of the detail images ($\Lambda_0, \ldots \Lambda_2$) is modified;

c) an output image strip is reconstructed from the – possibly modified – detail images;

d) steps a), b) and c) are repeated for other image strips of the input image;

e) an output image (A) is reconstructed from the calculated output image strips.

2. A method as claimed in Claim 1, characterized in that each image strip is resolved into a Laplacian pyramid and a Gaussian pyramid with K stages.

3. A method as claimed in Claim 1, characterized in that the image strips each have a width of 2^K rows.

4. A method as claimed in Claim 1, characterized in that the modification of a detail image (Λ_j) of the resolution stage $j < K$ is effected using a filter (GAF), the coefficients of which depend on at least one gradient calculated from the image strip.

5. A method as claimed in Claims 2 and 4, characterized in that the gradient is calculated from the Gaussian pyramid representation (Γ_j) of the j-th resolution stage.

6. A method as claimed in Claim 4, characterized in that the filter coefficients $\alpha(\Delta\vec{x}, \vec{x})$ are calculated from the coefficients $\beta(\Delta\vec{x})$ of a predefined filter, according to the formula

$$\alpha(\Delta\vec{x},\vec{x}) = \beta(\Delta\vec{x})\left[r(\vec{g}(\vec{x}),\Delta\vec{x})\right]^2$$

where $\vec{x}$ is the image point processed by the filter operation, $\Delta\vec{x}$ is the position of the coefficient relative to the center of the filter, $\vec{g}(\vec{x})$ is the gradient at the image position $\vec{x}$ and $0 \leq r \leq 1$.

7. A method as claimed in Claim 6, characterized in that

$$r(\vec{g},\Delta\vec{x}) = \left(\frac{1}{1+c[\vec{g}](\vec{g}\cdot\Delta\vec{x})^2}\right),$$

where $c[\vec{g}]$ is a positive factor that is preferably dependent on the gradient field and its variance.

8. A data processing unit for processing a digital input image (*I*) comprising N rows of image points, which data processing unit contains a system memory and a cache memory and is intended to carry out the following processing steps:

a) resolution of an image strip comprising $n < N$ adjacent rows of the input image into a sequence of K detail images (Λ_0, ... Λ_3; Γ_0,... Γ_3), which in each case contain just some of the spatial frequencies of the input image;

b) modification of at least one of the detail images (Λ_0, ... Λ_2);

c) reconstruction of an output image strip from the – possibly modified – detail images;

d) repetition of steps a), b) and c) for other image strips of the input image;

e) reconstruction of an output image (A) from the calculated output image strips;

wherein during steps a)-c) all processed data is in each case located in the cache memory.

9. A data processing unit as claimed in Claim 8, characterized in that it contains parallel processors and/or vector processors.

10. An X-ray system comprising

- an X-ray source;
- an X-ray detector;
- a data processing unit as claimed in Claim 8 or 9, coupled to the X-ray detector, for processing the X-ray input images transmitted by the X-ray detector.